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CHARLES WILLISON JOHNSON
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ENTOMOLOGICAL NEWS

VOL. XLIV. JULY, 1933 No. 7

An Apparently Undescribed Hesperia (Lepid.: Hesperiidae).

By R. A. LEUSSLER, Omaha, Nebraska.

Hesperia yosemite, new species.

In December, 1930, I received from Mr. E. A. Dodge, the well-known Lepidopterist of Santa Cruz, Calif., a small series of a *Hesperia* species. These skippers had been collected near Yosemite, Calif., Sept. 2, 1929, by his friend and co-worker Mr. John Strohbeen, also of Santa Cruz. Both Dodge and Strohbeen recognized that the form was probably new. Mr. Strohbeen kindly sent me some additional specimens and reported that the skippers were taken on a big Oak Flat near Yosemite Valley, and that they were numerous there.

A careful study of the material suggested that the specimens were possibly *harpalus* or *cabelus,* but Dr. Holland, to whom specimens had been sent for comparison with the types, wrote, shortly before his death, that he had made a close and critical comparison and that they were neither *cabelus* nor *harpalus* but a small hitherto undescribed species, very near *cabelus* and *harpalus* but distinct. Ernest L. Bell, who also obtained specimens from Dodge, states that they are of quite different appearance than other members of the group and cannot be satisfactorily placed under any present name. A name therefore would seem to be in order, and following the practice of giving geographical names to species in this group, I propose the name *yosemite.* A description follows:

Male, upper side: Primaries bright yellow fulvous, dark border on outer margin, fulvous apical spots within the border well defined. Stigma clear cut and without shading. Secondaries same ground color as primaries; dark border very narrow on outer margin· somewhat broader on costa. Underside: primaries paler than upper side, apical spots and outline

of stigma reproduced, inner margin paler than remainder of wing. Secondaries beneath, yellow with a faint greenish-grey cast. Spots small and creamy white.

Female, upper side: ground color of both wings somewhat paler than male; dark borders darker, broader and more clearly defined. Apical spots on primaries quite distinct in this sex, and on the secondaries the spots of lower surface show through above. The underside in the female sex is paler, the secondaries being a peculiar grey, tinged with greenish-yellow, and the spots are a clearer white than in the males.

Expanse: Male 26 mm., female 26 mm.

The above is a description of the ♂ holotype and ♀ allotype which are in the collection of the writer. There were before me, at the time of describing, 25 additional males and 15 additional females, belonging in part to E. L. Bell and to E. A. Dodge. All of these are designated paratypes. There is as usual more or less variation in size and in the width and intensity of dark borders in the series. The types, however, were selected as representing a fair average in these characters. In two of the males the underside of secondaries is immaculate, while in several others the spots are yellowish.

This is decidedly the smallest of the known N. A. species of *Hesperia.* The smallest male measures 22 mm., while the largest measures but 28 mm. The smallest and largest females measure 24 and 28 mm., respectively.

Compared with *cabelus* and *harpalus* this insect, according to Dr. Holland, is:

1. Smaller than either of the foregoing.
2. The ground color is brighter on the upper side.
3. The terminal borders of the primaries are narrower.
4. The stigma on the primaries is more sharply defined and seems different in extent and outline.
5. The light spots on the underside of the secondaries, which are not visible in *cabelus,* are quite different from what appears in the female type of *harpalus.*

From *oregonia,* which it also somewhat resembles, it can be distinguished by its smaller size, brighter color of upper surface, different color of underside of secondaries and lighter spots thereon.

List of Entomological Papers Written by Dr. W. J. Holland.

By A. AVINOFF, Carnegie Museum, Pittsburgh, Pennsylvania

1. Contributions to a knowledge of the Lepidoptera of West Africa, I, *Trans. Amer. Ent. Soc.* XIII, 1886, pp. 323-332, 2 pls., 3 new sp.

2. The larva of *Liphyra brassolis*. Probably Aphidivorous. *Canadian Entomologist*, Vol. XIX, 1887, p. 61 *et seq.*

3. Correspondence. *Entomologica Americana*, 1888, p. 35 *et seq.* Contains an account of the entomological collections of the writer.

4. Notes upon a small collection of Rhopalocera made by the Rev. B. C. Henry in the Island of Hainan, together with descriptions of some apparently new species. *Trans. Amer. Ent. Soc.*, Vol. XIV, 1888, pp. 111-124 (1 new genus, 9 new sp.)

5. A New Work on Japanese butterflies: Review of "Rhopalocera Nihonica" by H. Pryer. *Canadian Entomologist*, Vol. XX, 1888, pp. 77-78.

6. Captures made while traveling from Winnipeg to Victoria, B. C. *Canadian Entomologist*, Vol. XX, 1888, p. 89 *et seq.*

7. Annotated catalogue of the Insects collected in 1887-88 by the U. S. Fish Commission Steamer "Albatross." Lepidoptera by W. J. Holland. *Proceedings U. S. N. M.*, Vol. XII, 1889, p. 201 *et seq.* (Protoparce galapagensis sp. nov.)

8. Contributions to a knowledge of the Lepidoptera of West Africa, II. List of African Sphingidæ received during the years 1887-1888. *Trans. Amer. Ent. Soc.*, Vol. XVI, pp. 55-70, 3 pls. (4 new gen., 12 new sp.). March 1888.

9. Description of New Species of Japanese Heterocera. *Trans. Amer. Ent. Soc.*, Vol. XVI, 1889, pp. 71-76 (9 new sp.). March.

10. List of the Diurnal Lepidoptera taken by William Doherty of Cincinnati in Celebes. June and July, 1887, with descriptions of some apparently new forms. *Proc. Boston Soc. Nat. Hist.*, Vol. XXV. 1890, p. 52-82, 3 pls. (11 sp. nov.).

11. Descriptions of three new species of African Hesperiidæ. *Entomological News*, 1890, pp. 155-6.

12. Descriptions of new species of African Hesperiidæ. *Entomological News*, 1891, pp. 3-5. (3 new species.).

13. New species of *Neptis* from Africa. *Entomological News*, 1891, pp. 248-9 (1 pl.).

14. Descriptions of New West African Lycænidæ. *Psyche*, Nov.-Dec., 1890, pp. 1-9 (1 new genus, 25 new species).

15. Descriptions of New West African Lycænidæ. *Psyche,* March, 1891.

16. Collecting and Preserving Insects. In "Taxidermy and Zoological Collecting," by W. T. Hornaday. Scribners, 1891, pp. 305-338.

17. The Life-history of *Spalgis s-signata* Holland. *Psyche,* Jan. 1892, p. 201-3, 1 pl.

18. Notes upon the Transformation of Some African Lepidoptera. *Psyche,* Feb. 1892, pp. 213-16, 1 pl.

19. Report upon the Insects Collected by the U. S. Eclipse Expedition to West Africa, 1889-90. Lepidoptera by W. J. Holland. *Proc. U. S. N. M.,* Vol. XVI, 1892, pp. 568-572.

20. Descriptions of some new species of African Lepidoptera. *The Entomologist,* (London) Supplement to Vol. XXV, 1892, Sept. 1892, pp. 89-95 (1 new genus, 21 new sp.).

21. Descriptions of some new species of African Lepidoptera. *Ann. &Mag. Nat. Hist.,* Oct. 1892, pp. 284-295 (2 new gen., 17 new sp.).

22. Descriptions of four new West African Butterflies. *Canadian Entomologist,* Vol. XXV, 1893, pp. 1-3.

23. Some New and Little Known African Butterflies. *Entomological News,* 1893, pp. 22-27 (11 new species.).

24. New African Nyctemeridæ and Liparidæ *Entomological News,* 1893, p. 54-62, 1 pl. (17 new species.).

25. New Genera and Species of West African Limacodidæ. *Entomological News,* 1893, pp. 102-105, 1 pl. (4 new gen. and 19 new species.).

26. Three New West African Bombycids. *Entomological News,* 1893, pp. 136-7, 1 pl.

27. New Species of West African Drepanulidæ. *Entomological News,* 1893, pp. 171-180, 1 pl. (4 new gen., 22 new sp.).

28. New Exotic Lepidoptera. *Entomological News,* 1893, pp. 337-344, 1 pl. (13 new sp.).

29. Descriptions of New Species and Genera of West African Lepidoptera. *Psyche,* Jan. 1893, pp. 373-376 (16 new sp.).

30. (Continuation). *Psyche,* Feb. 1893, pp. 393-406 (1 new genus, 36 sp. nov.).

31. (Continuation). *Psyche,* March, 1893, pp. 411-418 (3 new genera, 33 sp. nov.).

32. (Continuation). *Psyche,* April, 1893, pp. 431-4 (1 new genus, 10 sp. nov.).

33. (Continuation). *Psyche,* May, 1893, pp. 451-4 (1 new genus and 10 sp. nov.).

34. (Continuation). *Psyche,* June, 1893, pp. 469-476 (1 new genus, 34 sp. nov.).

35. (Continuation). *Psyche,* July, 1893, pp. 487-90 (2 new genera, 15 sp. nov.).
36. (Continuation). *Psyche,* September, 1893, pp. 513-20 (2 new genera, 16 sp. nov.).
37. (Continuation). *Psyche,* October, 1893, pp. 531-8 (5 new genera, 16 sp. nov.).
38. (Continuation). *Psyche,* November, 1893, pp. 549-52 (3 new genera, 9 sp. nov.).
39. (Continuation). *Psyche,* December, 1893, pp. 565-8 (1 new genus, sp. nov.).
40. Butterflies of China, Japan and Corea. Book review of the great work by John Henry Leech. *Canadian Entomologist,* Vol. XXVI, pp. 113-4.
41. Four New Genera and Species of West African Sesiidæ. *Journal New York Entomological Society,* Vol. I, Dec., 1893. Illustrated, pp. 181-4.
42. African Hesperiidae. *Entomological News,* 1894, pp. 26-31, 1 pl. (9 sp. nov.).
43. Notes upon a Small Collection of Butterflies from Serra (Sjerra), Timor. Laut. *Entomological News,* 1894, p. 39.
44. New West African Dysgoniidæ. *Entomological News,* 1894, pp. 57-9, 1 pl. (5 new sp.).
45. Some New and Little Known African Hesperiidæ. *Entomological News,* 1894, pp. 89-95, 1 pl. (9 sp. nov.).
46. New and Undescribed Genera and Species of West African Noctuidæ. *Psyche,* January, 1894, pp. 7-10 (2 new genera, 10 sp. nov.).
47. (Continuation). *Psyche,* Febrauary, 1894, pp. 27-34 (5 new genera, 18 sp. nov.).
48. (Continuation). *Psyche,* March, 1894, pp. 47-50 (1 new genus; 9 new species.).
49. (Continuation). *Psyche,* April, 1894, pp. 67-70 (11 new species.).
50. (Continuation). *Psyche,* May, 1894, pp. 83-90 (26 new species.).
51. (Continuation). *Psyche,* June, 1894, pp. 109-114 (4 new genera, 49 sp. nov.).
52. Translation of article by Sandberg on the Metamorphoses of Arctic Butterflies. *Canadian Entomologist,* 1894, pp. 16 *et seq.*
53. Clerck's Icones. *Canadian Entomologist,* 1894, pp. 83, *et seq.*
54. Two New African Lycænidæ. *Entomological News,* 1895, pp. 166-8 (2 sp. nov.).

55. List of the Lepidoptera collected in eastern Africa by Dr. W. L. Abbott, with descriptions of some apparently new species. *Proceedings U. S. N. M.*, Vol. XVIII, 1895, pp. 229-58 (1 new genus, 22 new species.).

56. List of the Lepidoptera collected in Somali-land, East Africa, by Mr. William Astor Chanler and Lieut. von Höhnel. *Proceedings U. S. N. M.*, XVIII, pp. 259-64, May, 1896.

57. List of the Lepidoptera from Aldabra, Seychelles, and other East African Islands, collected by Dr. W. L. Abbott. *Proceedings U. S. N. M.*, XVIII, pp. 265-75, May, 1896.

58. List of the Lepidoptera collected in Kashmir by Dr. W. L. Abbott. *Proceedings U. S. N. M.*, Vol. XVIII, 1895, pp. 275-78.

59. Ravages of *Dermestes vulpinus* in Cork. *Entomological News*, 1896, pp. 68-9.

60. A New African Saturnid. *Entomological News*, 1896, pp. 133-5, 1 pl.

61. A preliminary Revision and Synomymic Catalogue of the Hesperiidæ of Africa and the adjacent islands, with descriptions of some apparently new species. *Proceedings Zool. Soc. London*, 1896, pp. 2-107, 5 pls. (11 new genera, 24 new species.).

62. Two New Species of the Genus *Xanthospilopteryx* Wallengren. *Annals and Mag. of Nat. Hist.*, London (6), XX, pp. 291-294 (2 cuts), 1897.

63. In "Through Unknown African Countries," by A. Donaldson Smith. Appendix D. List of the Lepidoptera Heterocera collected by A. Donaldson Smith, p. 408-422. Edward Arnold, Publisher to the Indian Office, London & New York, 1897.

64. Notes on Lepidoptera. *Journal New York Entom. Soc.*, 1898, pp. 57-59.

65. Descriptions of New West African Heterocera. *Entomological News*, 1898, pp. 11-13 (6 new species.).

66. "The Butterfly Book." 1898, pp. 1-382, 48 colored pls., 184 figs. Doubleday, McClure & Co., New York, N.Y. New and revised edition, 436 pp., 77 pls., 1931. Doubleday, Doran & Co., New York.

67. Concerning ticks. *Canadian Entomologist*, Vol. XXX, 1898, pp. 96-7.

68. Description of a Variety of *Argynnis nitocris* Edwards, from Chihuahua, Mexico, var. cærulescens Holland. *Entomological News*, January, 1900, p. 232.

69. The Lepidoptera of Buru. Pt. I, Rhopalocera. *Novitates Zoologicæ*, VII, March, 1900, pp. 54-86 (18 new species.).

70. "Rhopalocera Aethiopica," by Chr. Aurivillius, Book review, *Science,* New Series, Vol. XI, pp. 421-23, March 16, 1900.

71. "Everyday Butterflies," by S. H. Scudder, Book review, *Science,* N. S. XI, January 1900, pp. 67-8.

72. Alaskan Insects. *Entomological News,* March, 1900, pp. 381-388. (5 new species.).

73. Alaskan Insects. *Entomological News,* April, 1900, pp. 417-424 (1 new sp.).

74. Book review: "A Brief Guide to the Common Butterflies of the Northern United States and Canada," by S. H. Scudder. *Science,* N. S., Vol. XI, 1900, Aug. 17.

75. The Lepidoptera of Buru. Part II, Heterocera. *Novitates Zoologicæ,* VII, December, 1900, pp. 555-591 (2 new genera, 44 new species.).

76. Book review: Biologia Centrali-Americana, Insecta, Lepidoptera Rhopalocera. By Frederick Ducane Godman and Osbert Salvin. *Science,* N. S., XV, January, 1902, pp. 186-188.

77. Two New Species of Bahaman Lepidoptera. *Anns. Carn. Mus.,* Vol. I, pp. 486-9, March, 1902.

78. Description of an Apparently new species of *Palindia.* (*P. merricki*). *Entomological News,* 1902, p. 172.

79. "The Moth Book," 1903, Doubleday, Page & Co., New York.

80. The distribution of *Catopsilis eubule. Entomological News,* XV, p. 41, Jan., 1904.

81. Note on *Epipyrops barberiana* Dyar. *Entomological News,* Vol. XV, pp. 344-5, Dec., 1904.

82. A New Noctuid from Sierra Leone. *Annals and Mag. of Nat. Hist.* (7), Vol. XVI, pp. 18-20, July, 1905.

83. An Evil-smelling Beetle. *Entomological News,* October, 1907, p. 367.

84. A New Lycænid from Kamerun, West Africa. *Entomological News,* Vol. XXIV, 1913, pp. 301-3.

85. "The Butterfly Guide." 1915, Doubleday, Page & Co., New York, N. Y.

86. Butterflies. *The Mentor,* August, 1915, Vol. 3, No. 12, Serial No. 88, The Mentor Association, Inc., 52 E. 19th St., New York, N. Y.

87. The Lepidoptera of the Isle of Pines, being a list of the Species collected on the Island by Mr. J. L. Graf and Mr. G. A. Link, Sr., in 1910 and 1912-13. *Annals Carn. Mus.,* Vol. X, 1916, pp. 487-518.

88. A list of the Orthoptera collected on the Isle of Pines by J. L. Graf and G. A. Link, Sr., in 1910 and 1912-13. *Annals Carn. Mus.,* Vol. X, 1916, pp. 542-546.

89. Two new West African lepidoptera. *Annals Carn. Mus.*, Vol. XI, 1917, pp. 14-28, 1 pls. (2 new species.).

90. List of the Hymenoptera collected on the Isle of Pines by G. A. Link, Sr., 1912-13, and contained in the Carnegie Museum. *Annals Carn. Mus.*, Vol. XI, 1917, pp. 291-296.

91. List of the Coleoptera collected on the Isle of Pines by Gustav A. Link, Sr., 1912-13. *Annals Carn. Mus.*, Vol. XI, 1917, pp. 333-345.

92. Lepidoptera of the Congo, being a systematic list of the butterflies and moths collected by the American Museum of Naural History Congo Expedition, together with Descriptions of some hitherto undescribed species. *Bull. Amer. Mus. Nat. Hist.*, Vol. XLIII, Dec. 1920, Art. 6, pp. 109-369, pls. VI-XIV.

93. A new species belonging to the genus *Goodia* (*Orthogonioptilum*). *Proc. Entom. Soc. Washington*, Vol. XXIII, No. 4, April, 1921, pp. 99-100, 1 pl.

94. The Geographical Distribution of the Machaon-Group of the genus *Papilio* (*Lep. Rhop.*). *Entomological News*, Vol. XXXII, 1921, pp. 207-208.

95. *Calopteryx maculata* Beauvois, an interesting photograph. *Proc. Entom. Soc. Washington*, Vol. XXIV, 1922, p. 117, pl. 13.

96. A few notes on Distribution (Lep.; Orth. Blattidæ). *Entomological News*, Vol. XXXIII, 1922, pp. 168-169.

97. Tingitidæ of Tingidæ. *Science*, N. S., LVI, 1922, pp. 334-335.

98. Tingitidæ or Tingidæ Again. *Science*, LVI, 1922, pp. 536-7.

99. The Family name of the Lace-bugs (Tingitidae). *Annals Entom. Soc. of America*, Vol. XVII, No. 1, March 1924, pp. 95-96.

100. The Epipaschiinæ of the Western Hemisphere, a Synonymic catalogue of the species hitherto described with figures of many which have not heretofore been depicted. *Annals Carnegie Museum*, Vol. XVI, 1925, pp. 49-130, 7 pls.

101. The Lepidoptera named by George A. Ehrmann (The Parnassiidæ by A. Avinoff). *Annals Carn. Mus.*, Vol. XVII, April, 1927, p. 299-364.

102. Exit Hübner's Tentamen. *Science*, Vol. LXVI, July, 1927, pp. 4-5.

103. "Exit the Tentamen, But" . . . What?" *Science*, N. S., Vol. LXVII, pp. 161-162, Feb., 1928.

104. The Invalidity of the Tentamen names of the butterflies. (Lepid.; Rhopalocera). *Entomological News*, Vol. XXXIX, No. 2, pp. 50-59, Feb., 1928.

105. The Argynnids of the Nokomis group. *Annals Carn. Mus.*, Vol. XIX, Oct. 10, 1928, pp. 15-34.

106. Notes upon some North American Species and Varieties of the Genus *Brenthis*. *Annals Carn. Mus.*, Vol. XIX, No. 1, Oct., 1928, pp. 35-46.

107. A New Riodinid from Louisiana (Lepid.). *Entomological News*, Vol. XL, Jan., 1929, p. 20.

108. The first picture of an American Butterfly. *Scientific Monthly*, Vol. XXIX, July, 1929, pp. 45-48, 1 pl.

109. *Hesperia ruricola* Boisd. and *Pamphila californica* Mabille Synonyms of *Atrytone vestris* (Boisduval) (Lepid.: Hesperiidæ). *Entomological News*, Vol. XL, December, 1929, pp. 326-328.

110. The Mutual Relations of Museums and Expert Specialists. *Transactions Fourth Entomological Congress of Entomology*, Ithaca, August, 1928, Vol. II, pp. 278-285, Dec. 1929.

111. Forum on Problems of Taxonomy: Types *l.c.* December, 1929, (pp. 688-693).

112. New Species and varieties of North American Butterflies. *Annals Carn. Mus.*, Vol. XIX, No. 3, Jan., 1930, pp. 155-160.

113. Notes on some American Butterflies, mainly relating to their classification and nomenclature, Pt. 1, Pap. Pier. Nymph. (Danainæ). *Annals Carn. Mus.*, Vol. XIX, No. 3, 1930.

114. *Papilio monuste* L. (A Critique). Reprinted from the *Bulletin Brooklyn Entom. Soc.*, Vol. XXV, No. 3, June, 1930, pp. 133-137.

115. New species of *Erebia*. *Trans. Amer. Entom. Society*. Vol. LVI, July, 1930, pp. 149-153.

116. Two New North American Butterflies. *Annals Carn. Mus.*, Vol. XX, Aug., 1930, pp. 5-7.

117. Notes on some American Butterflies mainly relating to Classification and Nomenclature. Pt. 2, Nymphalidæ, &c. *Annals Carn. Mus.*, Vol. XX, Oct., 1930, pp. 39-55.

118. Notes on some American Butterflies mainly relating to classification and Nomenclature. Pt. 3, (Continued from Vol. XX, No. 1) *Annals Carn. Mus.*, Vol. XX, No. 2, June, 1931, pp. 255-265.

Sex of Migrating Monarch Butterflies (Lepid.: Nymphalidae).

Dr. H. T. Fernald, 707 E. Concord Ave., Orlando, Florida, wishes information on the question whether both sexes, or only females, of the Monarch Butterfly, *Danaus archippus*, take part in the southward migration of this species in autumn.

Notes on Some Longicorns from Subtropical Texas (Coleop.: Cerambycidae).

By E. G. Linsley and J. O. Martin, Oakland, California.

Since the subtropical insect fauna of Brownsville, Texas, was first made famous by Townsend, and later by Wickham, Schwarz, and Schaeffer, this interesting region has been sought by many collectors. During recent years the development of good roads and improved methods of transportation have eliminated the necessity for spending long periods of time in travelling to and from Southern Texas. Brownsville is on the direct air route to Central America and Mexico and may be reached by air from almost any point in Eastern United States. The path of the motorist is made easy by paved roads from California or New York. What a change from the days when Prof. Wickham first bumped and skidded his way to Brownsville in a stage coach!

During a short period in the summer of 1930, and again in the late spring of 1932, the writers had the privilege of collecting in Brownsville. The limited time on both occasions allowed us only a brief introduction to the fauna. We found it interesting, however, to compare notes with previous writers, and especially with Mr. Schaeffer who was the last to describe the region.

At the present time, the subtropical areas which Mr. Schaeffer refers to as "covered with a dense forest and thick undergrowth of varied shrubbery and a rich vegetation of lower plants," are greatly reduced both in size and number as a result of the encroachment of agriculture. Only half a dozen such thickets still exist and few of these are more than an acre or two in size. Most of these areas are on private property, and if the owner is unsuccessful in driving off the would-be collector, the ticks and "redbugs" usually achieve this purpose.

The Palmetto Grove, "consisting of *Sabal mexicana* of enormous size, and a variety of shrubs and trees densely overgrown or bound together by several species of vine," is now a picnic ground where one may collect upon payment of the twenty-five cent admission price. Much of the undergrowth has given way

to benches, tables, and paths, although there are still a few untouched spots where collecting is possible.

Most of the uncultivated land in Brownsville is forested with Mexican ebony, Huisache, Mimosa, and various related thorny trees. In these areas a continual process of clearing is taking place, and around freshly cut trees we found excellent collecting not only in the daytime, but at night with the lantern. Most of the longicorns collected in this manner were of the more widely distributed species, although subtropical forms were not uncommon.

The Cerambycidae of the Brownsville region are particularly interesting because they represent a greater proportion of subtropical species than may be found in any other family of the Coleoptera. The first list of Brownsville Cerambycidae was published by Prof. Townsend (1898) and included forty-three species. The second list was that of Mr. Schaeffer (1908) and comprised seventy-eight species.

It is interesting to note how few species have been added since Mr. Schaeffer's paper appeared. Col. Casey, (1912, 1913, 1924) has described several species from this locality, but most of these are species which appear in the list under other names and hence do not materially swell the total. Among the species included below are only eight which were not in Mr. Schaeffer's list. Of these eight species, *Neoclytus acuminatus* is widely distributed, *Anoplium moestum*, *Ataxia hubbardi*, and *Lepturges minutus* are found in other parts of the South, *Eburia haldemani* and *Hypexilis pallida* are typically Texan, and only *Ecyrus cornutus* and *Oncideres cornuticeps* appear to be truly subtropical. These and recently described species bring the Brownsville total to approximately eighty-eight, of which we collected sixty-five species during our ten-day visit (May 29-June 8, 1932). Since the host plants of few of these species have been recorded, the following notes are offered in the hope that they will prove of assistance to other collectors.

1. ARCHODONTES MELANOPUS var. CILIPES Say. Taken under loose bark of various trees and occasionally at light.

2. SMODICUM CUCUJIFORME Say. Small series under bark of dead *Salix*.

3. ACHRYSON SURINAMUM Say. This species was beaten in considerable numbers from Mexican ebony, *Pithecolobium flexicaulis*, and Huisache, *Acacia farnesiana*, and was taken commonly at light. Specimens vary from 9 to 18 mm. in length.

4. A. CONCOLOR LeConte. The larger specimens of this species are about the size of the smaller specimens of *A. surinamum*. *A. concolor* bores in small twigs of *Acacia* and *Pithecolobium* and is occasionally taken at light. Numerous examples were reared from branches which had been girdled by *Oncideres pustulatus* Lec.

5. GNAPHALODES TRACHYDEROIDES Thomson. This species is most active at dusk and in the early evening, when it may be captured flying about freshly cut *Acacia*.

6. EBURIA STIGMATICA Chevr. Under loose bark of *Salix* and *Acacia*.

7. E. MUTICA var. MANCA LeConte. A few examples taken at light.

8. E. HALDEMANI LeConte. One example under bark of *Salix*.

9. PANTOMALLUS OVICOLLIS LeConte (*?Eburia densa* Casey). Taken occasionally on P. *flexicaulis* and at light.

10. ROMALEUM TAENIATUM LeConte. Taken under bark of *Salix* and at light.

11. ELAPH DION MIMECTICUM Schaeffer. This species hides beneath loose bark and around branch stubs on living trees, and was taken on *Salix, Acacia, Celtis* and *Fraxinus*. It is also common at light.

12. HYPERMALLUS INCERTUS Newman. Taken at light.

13. ANEPSYRA TENUE LeConte. Taken on *Acacia farnesiana* and at light.

14. ANOPLIUM INERME Newman. Occasionally taken at light.

15. A. MOESTUM LeConte. A small series taken at light.

16. A. TRUNCATUM LeConte. Reared from girdled branches of *Acacia* and also taken at light.

17. A. NIVEIVESTITUM Schaeffer. Beaten from *Fraxinus texensis* and other trees in the Palmetto Grove. The specimens lie very still on the beating sheet and are apt to be overlooked.

18. PSYRASSA TEXANA Schaeffer. Beaten from *A. farnesiana* and taken at light.

19. Ps. SALLEI Bates. This rare species was taken on *Acacia* and at light.

20. COMPSA TEXTILIS var. ALACRIS Bates. One example taken on *A. farnesiana*.

21. IBIDION EXCLAMATIONIS Linell. This species hides during the day around rotten branch stubs of *Acacia, Mimosa, Celtis,* and other trees and was reared from branches girdled by *Oncideres pustulatus* Lec.

22. I. TOWNSENDI Linell. Also reared from girdled branches and found under conditions similar to those of the preceding. Both species rest with their antennae placed straight forward giving them the appearance of a small twig.

23. HYPEXILIS PALLIDA Horn. One example of this rare species was taken at light.

24. OBRIUM MACULATUM Oliv. Very common on *Acacia, Salix, Celtis, Fraxinus,* and other trees, as well as at light. A few specimens were reared from branches girdled by *Oncideres.*

25. O. MOZINNAE Linell. Beaten from *Acacia* and attracted to light.

26. CYLLENE CRINICORNIS Chevr. This species was taken running rapidly over freshly cut branches of *Acacia farnesiana* and *Pithecolobium flexicaulis.* During the day the beetles are very active and rather difficult to capture, but after dark they may be drawn from brush piles by means of a lantern.

27. NEOCLYTUS ACUMINATUS Fab. This species must be added to the two *Neoclytus* listed by Mr. Schaeffer (*N. mucronatus* and *N. abbreviatus*). The Brownsville form differs from the typical in being dark brown instead of reddish, the head, antennae, and legs rufous, and the elytral fascia white instead of yellow. Examples reared from branches of *Acacia* girdled by *Oncideres pustulatus* Lec.

28. EUDERCES EXILIS Casey. Beaten from *Acacia* and *Salix.* The adult beetles bear a striking resemblance to the ants which over-run every tree and shrub.

29. TETRANODES NIVEICOLLIS Linell. Beaten from *Mimosa* and *Acacia.*

30. RHOPALOPHORA LAEVICOLLIS LeConte. This beautiful species was taken on *Sambucus* in the Palmetto Grove.

31. RH. RUGICOLLIS LeConte. Taken on *Salix.*

32. RH. ANGUSTATA Schffr. Taken on *Celtis* in the Palmetto Grove.

33. STENOSPHENUS DOLOSUS Horn. A small series taken on sunflower stems.

34. SPHAENOTHECUS SUTURALIS LeConte. Taken on *Acacia farnesiana.*

35. DENDROBIUS MANDIBULARIS *Serv.* One specimen taken in flight.

36. THRYALLIS UNDATUS Lac. Beaten from *Celtis* and *Salix* in the Palmetto Grove. The Brownsville specimens are not quite typical, differing from the form figured by Lacordaire in

having the undulating lines of the elytra shattered and broken. This species at first glance looks like a small specimen of *Synaphaeta guexi* Lec.

37. ASTYLIDIUS PARVUS LeConte. A small series taken on *Celtis*.

38. LEIOPUS WILTI Horn. This species was found only on *Acacia farnesiana*.

39. L. CRASSULUS LeConte. Taken on *Acacia* and related trees. Like Mr. Schaeffer, we did not find *Leptostylus biustus* Lec., and it seems quite likely that this is the form that was called *L. biustus* in previous Brownsville lists.

40, 41. L. SPP. Two undetermined species taken on *Fraxinus texensis* and jungle plants. Casey has described *L. texanus* and *L. houstoni* from Brownsville but we cannot identify these from the descriptions. This genus is in great need of revisional study.

42. LEPTURGES MINUTUS Champ. and Knull. One specimen taken in miscellaneous beating, and very kindly compared with the type by Mr. J. N. Knull. The Brownsville specimen is half again as large as the type and more plainly marked, but appears to be assignable to *L. minutus*.

43. L. CELTIS Schaeffer. Taken on *Celtis* in the Palmetto Grove.

44. L. ANGULATUS LeConte. Abundant on every type of tree and shrub. Several hundred specimens captured show little variation in maculation. This appears to be a valid species.

45. DECTES SPINOSUS Say (*?Dectes latitarsus* Casey). A few specimens taken on small annuals.

46. ECYRUS FASCIATUS Hamilton. This is one of the most beautiful of our longicorns and bears a striking resemblance to the lichen-covered branches on which it is found. Examples were taken on dead branches of *Salix* and other trees.

47. E. DASYCERUS var. TEXANUS Schaeffer. Beaten from dead branches of *Acacia farnesiana* and taken at light. In our series none show any intergradation with typical *E. dasycerus* Say.

48. E. CORNUTUS Linsley. A small series beaten from dead *Salix*.

49. EUPOGONIUS FULVOVESTITUS Schaeffer. Taken in the Palmetto Grove.

50. E. VESTITUS Say. Beaten from *Fraxinus texensis*.

51. PYGMAEOPSIS VITICOLA Schaeffer. This interesting little species was beaten from jungle vines in the Palmetto Grove. The female is 4.5 mm. long, with the pubescence of the elytra mottled brownish, black, and white. The white pubescence is arranged in longitudinal interrupted lines. The male is 3 mm.

long, the elytra uniformly cinereus, with darker areas in the basal and sub-apical region. The male does not have the mottled appearance of the female and lacks the interrupted white lines of the elytra.

52. ONCIDERES PUSTULATUS LeConte. This species appears to be active in late summer and fall, and from the abundance of its work, examples must be rather numerous at that time of year. *O. pustulatus* girdles branches of both *Acacia farnesiana* and *Pithecollobium flexicaulis,* selecting branches an inch to an inch and one-half in diameter and six to twelve feet in length. The larvae are restricted to the main portion of the branches, leaving the outer twigs to smaller beetles which avail themselves of this specially prepared breeding place. Among the insects reared from these outer branches were eight species of longicorns.

53. O. TEXANUS HORN (*?Oncideres subtropicus* Casey). This species was taken girdling small twigs of *Acacia farnesiana.*

54. O. CORNUTICEPS Schaeffer. This fine species was described from Texas without definite locality and this appears to be the first record in regard to its distribution. One male and two females were captured on *Celtis* in the Palmetto Grove. Mr. Schaeffer has very kindly compared these specimens with his type, and found them to agree in all important respects. The coloration of this species suggests *O. sparsa* Bates.

55. APORTAXIA LINEATA Hamilton. This species is beaten from dead branches of *Salix* and is usually taken with *Ecyrus cornutus* Linsley. Three examples taken from jungle vines appear to represent a new species of *Aporataxia.*

56. ATAXIA CRYPTA Say. Taken on *Salix, Acacia, Celtis,* and at light.

57. A. HUBBARDI Fisher. Numerous examples taken from the stems of sunflower.

58. A. TIBIALIS Schaeffer. One example of this interesting species was taken in the Palmetto Grove. This is not a typical *Ataxia.*

59. HIPPOPSIS LEMNISCATA Fab. Taken commonly on jungle vines, sunflower, and small annual plants.

60. DORCASTA CINEREA Horn. Taken on sunflower, small annuals, and at light.

61. SICYOBIUS BROUSI Horn. Miscellaneous beating in the Palmetto Grove.

62. MECAS INORNATA Say. On small composite plants.

63. M. PERGRATA Say. One example in Palmetto Grove.

64. HEMIERANA SUTURALIS Linell. Miscellaneous beating.

65. CATHETOPTERON AMOENA Hamilton. A number of examples of this very pretty little species were taken on *Celtis.*

How to Keep the Red Type Labels Red.

By HARRY H. KNIGHT, Iowa State College, Ames, Iowa.

For many years it has been customary for systematic entomologists to mark *the type* specimen of a new species with a red label. In more recent years this has meant selecting and marking a holotype and allotype with red labels. Paratypes and other types of special category have been marked with labels of various colors, but usually with a color less conspicuous than bright red. It has been my experience that non-fading red label material has been difficult to obtain since the war period. That veteran of pin labels, Mr. C V. Blackburn, of Stoneham, Mass, did for many years furnish the finest labels that could be obtained. After the war period he wrote me that it seemed impossible to obtain a good, bright red stock for type labels. I have found that the best red labels he could supply in the period 1919 to 1928 have done more or less fading. Perhaps the economic depression, which has reduced many artificial values, will be responsible for bringing back an era in which quality will be stressed, and among other things let us hope this will result in the manufacturer placing more permanent colors in red paper stocks.

This brings us to the fact there are many type labels in collections throughout the country which show fading red colors. In fact there are rumored threats of some systematists going off the red label standard. In my own collection the fading colors reached the point where I resolved to do something about it. I finally hit upon the idea of recoloring the old labels with a good quality of waterproof scarlet ink. I found that "Higgins' Scarlet waterproof Ink" is very satisfactory for the purpose. Old labels can be colored without removing them from the pin. Using a camel's hair brush one can apply the ink in sufficient quantity to flow evenly over the label surface. The label will curl somewhat while damp but soon regains the original position when dry. Labels that have been written upon with waterproof black ink, and such ink should always be used, will not be affected by the addition of some scarlet ink. Label strips can be dipped or painted before using, and when dried out can be written upon with black ink just as

before. There may be other brands of waterproof scarlet ink which will do for coloring labels, but in any case the ink should be waterproof and non-fading. Experience has shown that an old type label can be colored in less than one minute of time. Remove the type specimen from the case or box and set it on a handling block for safety, then apply the red ink with a brush and replace in the collection.

Synonymical Notes on Membracidae. III. (Homop.)*

By Frederic W. Goding.

Centrotinae.

Centrotus bonasia Fabr., a species unrecognized since it was described may now be placed in its modern genus. Dr. W. E. China, through the courtesy of Prof. R. A. Staig, of the Glasgow Museum, has compared a cotype of the species with Walker's type of *Callicentrus aurifascia* and states (*in litt.*) that they are the same species.

Centrotus magellani Fairm. from the Philippines, with its projecting forward suprahumerals and the posterior pronotal process distant from the body belongs in the genus *Arimanes* Dist. Possibly Dr. Funkhouser may be able to identify this species from examples in his extensive collection of forms from that locality.

Fairmaire's unknown species *Centrotus paria* is identified in error by Distant as a *Leptocentrus;* but its slender suprahumerals and attenuated posterior pronotal process being close to the scutellum excludes it from that genus and places it in the genus *Cebes* Dist. Distant gives the habitat as India whereas Fairmaire says East Indies. The Indian species figured by Distant should be cataloged as *Leptocentrus paria* Dist.

Darninae.

Telamona spinigera Haviland apparently belongs in Funkhouser's new genus *Spinodarnoides,* its characters agreeing with those of that genus the most closely.

[*Nos. I and II were published respectively in Jour. N. Y. Ent. Soc., xxxviii, pp. 39-42 (1930) and Ann. Ent. Soc. Amer., xxiv, pp. 935-936 (1931).—Eds.]

Telamona ruficarinata Fowler is described as rather narrow, pronotum testaceous brown variegated with black, rugose, laterally carinate, median carina red, with a large broad rounded protuberance a little before the middle, abruptly descending in front to dorsum leaving a flat level space before the metopidium; humerals broad, porrect, subauriculate; posterior process nearly long as tegmina which are piceous and testaceous variegated; legs testaceous partly infuscate. Long. 10; lat. 5 mm. Bogota.

This species has been cataloged as synonymous with *Telamona gibba* Buckt.; but a comparison of the two descriptions with an examination of Buckton's figure prove them to be distinct. *Gibba* is piceous or deep brown; pronotum rises above the almost vertical metopidium in a blunt short horn which projects forward as shown in the figure; behind this horn is a smaller dorsal eminence which gradually slopes into the posterior process whose apex reaches tips of tegmina; humerals very obtuse. Tegmina dark, almost black; legs brown. Long. 13; lat. 9 mm. Bogota.

Fowler's species is narrow, *gibba* robust, the dorsal crest of the former being near the middle leaving a flat level space in front, but no mention is made of an anterior projecting horn; whereas the crest of *gibba* rises almost vertically above the head with two elevations; the humerals are broad, porrect and subauriculate in *ruficarinata*, but obtuse in *gibba*, while the color patterns and sizes are totally different.

It is evident that the two forms are not only distinct species, but belong in different genera. Until an examination of the type is made it seems best to allow *ruficarinata* to remain in the genus *Telamona*. Laporte having used the name *gibba* for the type of his genus *Atypa*, Buckton's species has been renamed *Atypa bucktoni* Godg.

SMILIINÆ.

Darnis triguttata Burn, is doubtless a *Boethoos* (*Parmula*) where Stål placed it, and is one of the color varieties of *B. dispar* Fabr. It is not *Vanduzea vestita* Godg. which VanDuzee proves is a good species. McAtee states that the type label of *vestita* is on the pin of a male *arquata* Say in the National

Museum. The original description of *vestita* was made from a specimen from Arizona which had been submitted to Dr. Uhler, who informed me it was a new species and in his collection under the MS. name of *vestita* which I adopted, to which specimen the type label was attached. When and by whom the label was changed is not known.

In his carefully prepared monograph of the Telamonini Dr. Ball has placed *Telamona celsa* Godg., from Brazil, as a synonym of *Telamona querci* Fitch, a form common in the eastern United States. In his introductory remarks, page 4, he says, "Specific characters are almost entirely based on size, shape and color pattern, and differences in shape of horn, crests and humeral angles within generic patterns." A comparison of *celsa* with *querci* shows that they greatly differ in all of Ball's specific requirements. *Celsa* is strongly punctured, yellow anteriorly becoming darker towards apex of pronotum, with lateral margins narrowly black. *Querci* is finely punctured, greenish brown irrorate with white dots. Pronotum of *celsa* is convex from the strongly sinuate basal margin to behind the humerals, then elevated in an erect crest whose front margin is vertical, hind angle obtuse, hind margin obliquely sinuate, a strong circular impression each side at posterior base; humerals large, auriculate, tips black; posterior process almost long as tegmina. Pronotum of *querci* with basal margin weakly sinuate, lateral margins concolorous; crest subquadrangular, inclined backwards, front margin concavely sloping into the metopidium, hind margin upright, lateral circular impressions not mentioned in any published description; humerals short, not auriculate; posterior process shorter than tegmina. Basal third of tegmina of *celsa* black punctured, which is absent in *querci*. Body of *celsa* yellow, of *querci* brown. The above mentioned differences are much greater than in forms separated into species by Ball, and the habitats are very distant. *Querci* feeds on oaks; but oaks are not a part of the Brazilian flora, while no records have been found of shipments of young oaks from the United States to Brazil. Judging from all the known data it is certain that *celsa* is a valid species.

Hints for Collectors.

Ward's Entomological Bulletin, number five, May, 1933, has just come to hand. Special prices are given on collecting nets, entomological pins, spreading boards and breeding cages. The Establishment is experimenting on a new light trap. They advise that collectors keep records of the species of flowers on which specimens are taken. A small additional label placed below the usual data label is excellent. Far too little data of this sort are recorded. Even the time of day when the specimen was captured is also good information to preserve. A note is given of the adoption by some collectors of mounting their minute specimens on the side of a regular, large insect pin at the usual height, instead of pinning them to a "minuten" or sticking them to a point; using DuPont household cement or other good adhesive. [DuPont's is quick drying and should be used very thin (with banana oil or acetone) necessitating fast work, or the surface of the adhesive will become glazed and the specimen will not be thoroughly fastened.]

Entomological Literature

COMPILED BY LAURA S. MACKEY UNDER THE SUPERVISION OF E. T. CRESSON, JR.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

The **figures within brackets** [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of ENTOMOLOGICAL NEWS for 10c. The number of, or annual **volume**, and in some cases the part, heft, &c. the latter **within** ( ) follows; then the pagination follows the **colon** :

All continued papers, with few exceptions, are recorded only at their first installments.

*Papers containing new forms or names have an * preceding the author's name.

(S) Papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

☞*Note the change in the method of citing the bibliographical references, as* **explained above.**

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A NATURALIST IN THE GUIANA FOREST by Major R. W. G. HINGSTON. New York: Longmans, Green & Co., London: Edward Arnold & Co., 1932, pp. xiii, 384; 16 plates, 150 text illustrations. $5.00.—Major Hingston, author of *Problems of Instinct and Intelligence*, based largely on his own observations of insects and spiders in India, to whose natural history he has contributed many other volumes and papers, here describes some of the experiences of the Oxford University Expedition to British Guiana, of which he was leader. The expedition comprised twelve persons, of whom the entomologists were Major Hingston, O. W. Richards, of the Imperial College of Science, and J. E. Duffield, of Oxford, as well as a number of helpers recruited in Guiana. It established itself in a camp on Moraballi Creek, a tributary of the right bank of the Essequibo River, about 15 miles above Bartica and two miles from the creek's mouth. Here for four months, August to November,

inclusive, of 1929, it devoted itself to a study of the forest, especially its roof, and its fauna and flora. "We were not so much concerned with making large collections as with matters connected with field observation such as the habits, instincts, life-histories and behaviour of the various forms of tropical life." "We collected altogether 75 mammals, 166 birds, 207 reptiles, about 10,000 insects, about 5,000 sets of plants, and about 500 miscellaneous. The collection of animals has been deposited at the British Museum and plants at the Royal Botanic Gardens, Kew." Technical reports on these "will be published independently by specialists in suitable zoological and botanical journals."

An area of about 2000 square yards was divested of its vegetation to serve as a camp site. Here tents and shelters were erected. From this centre the surrounding forest was explored. Some tall trees were felled to examine the life of their crowns, but the chief studies of the forest canopy were made from arm-chair-like seats suspended from ropes or attached to high branches, or by climbing out such branches directly or on rope ladders. Two native rubber-balata men proved more efficacious in carrying the first ropes to elevations of 100 feet, more or less, than rocket-firing apparatus brought along for the purpose. Descriptions of the difficulties encountered and the ways in which they were met are given in some detail for the benefit of future investigators in these altitudes. Obviously strength, perseverance and a level head are necessary qualifications and much risk must have been run by those who ascended to the tree tops. Baited traps, illuminated at night, and hung at different elevations, furnished much material. Brief summaries of the insects and other animals of the roof and of other parts of the forest will be found in several places (pp. 56, 59-60, 75-80, 82-84, 353-359, 362). The final chapter (XVI) contrasts the differences between tree-roof and forest-floor. The author was strongly impressed with the horizontal stratification of the forest. Botanically he believes that there are at least four layers. To each of these he assigns characteristic mammals and birds and believes that the examination of the insect collections made will confirm this division.

A large part of the book (pp. 85-235) is devoted to the snares, traps, nests and protective devices of spiders, 27 new species of which are described in the appendix, pp. 363-377. Protective, intimidating and warning devices of insects occupy fewer pages (236-348). The book is highly interesting to all concerned with tropical forest conditions and life.

P. P. CALVERT.

A TEXT-BOOK OF PRACTICAL ENTOMOLOGY by FRANK BALFOUR- BROWNE. New York Longmans Green & Co. London: Edward Arnold & Co., 1932. 10 x 7½ inches, pp. viii, 191, 116 figs. $5.00.

METHODS FOR THE STUDY OF THE INTERNAL ANATOMY OF INSECTS by CLARENCE HAMILTON KENNEDY, Ohio State University. Mimeographed by H. L. Hedrick, Columbus, Ohio. 1932. 10¾ x 8½ inches, 103 pp. on both sides of each leaf, many illustrations. $2.00.

Here are two books very different in their immediate objects and in their contents, but both concerned with insect anatomy. The first is designed to meet requirements in subject matter and within time limits in English educational arrangements. It is divided into three parts, Elementary Course (28 pp.), Advanced Course (66 pp.) and the Principles of Systematic Entomology (94 pp.). It thus follows that the same group of insects may be treated three times, *i.e.*, from each of these points of view. The text consists largely of directions for laboratory work. The cockroach occupies 14 of the pages and all of the illustrations (limited to external anatomy) of Part I, while the remainder of this Part treats very briefly of the orders other than Orthoptera. In Part II, 23 pages and 24 figures are concerned with the external and internal anatomy of the adult *Dytiscus marginalis*, followed by 7 pages and 5 figures on its larva. The rest of Part II is arranged on the basis of organ systems, with a couple of pages each on embryology and on histology and another brief summary of the orders. Part III includes a study of a grasshopper (14 pp., 11 figs.), the wings of insects (7 pp., 5 figs.) and the external morphology of Rhynchota, Coleoptera, Lepidoptera, Diptera and Hymenoptera (68 pp., 54 figs.). The only keys for identification are one of families of larvae of Coleoptera (based on Macgillivray's of 1903) and one of families of larvae of Lepidoptera (based on Fracker's of 1915). There is a general index of 2 1/3 pages. This volume may, therefore, serve as a laboratory manual for three different courses in entomology of increasing length, as well as a reference book on those insects and topics which are dealt with at greater detail. It is well-printed and the illustraions are new.

Prof. Kennedy's book is a handbook of the technique of the collection, dissection, fixation, whole-mounting, embedding, sectioning and staining of insect material, the apparatus and tools to be used therewith, the making of drawings and their reproduction in publication. It too has been written for a course of instruction—at Ohio State University—wherein the problem

method of teaching is used, but its usefulness is world-wide, wherever entomology is pursued. The author has brought together from many sources a very large number of methods, suggestions, hints, cautions and bits of advice for the beginner and for the most advanced research worker as well. There is a bibliography of eleven titles on microscopical technique and an extensive alphabetical index of 12 pages.

P. P. CALVERT.

INSECTS.—Man's Chief Competitors. By W. P. FLINT and C. L. METCALF. The Williams and Wilkins Co. in cooperation with the Century of Progress Exposition. Baltimore, 1932. 133 pp. 12 figs. $1.00.—With the public mind attuned to the reading of sparkling, wise-cracking columnists and adapted to the pap dispensed in a supercilious manner by our more prosperous group of writers, it is becoming more difficult for scientific workers to produce anything which can compete successfully for popular attention. And yet it is the scientific worker, the specialist, who should take time to give something of what is his to the public. Although it be difficult for him and although he may not quite master the perfection of style of the professional writer, it is he who should do it, for he alone possesses the proper background of knowledge from which to select what is best.

This little volume succeeds very well in maintaining an imaginative and popular style and in avoiding technical terminology, but presenting withal an informative and balanced account of its subject matter. The point of view is that of considering insects as man's competitors and enemies. The methods and equipment of both the enemy camps are described, including a comparison of the structure and functioning of the bodies of insects and man. Then follows an account of the ten principal orders of insects and finally a series of seven insect "biographies" including the Grape Phylloxera, Fleas and the Black Death, Ox Warbles, etc. In each case the historical side is not neglected, mention being made of the way in which the main facts were discovered. The book will interest both old and young, its style is very apt to arouse the imagination and interest of the latter, especially. R. G. SCHMIEDER.

OBITUARY.

With great regret we announce the death of DR. FREDERIC W. GODING, well known for his work on the Membracidae, which occurred at Livermore Falls, Maine, on May 5, 1933.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

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